

## **Medical Force Protection: Chile**

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Medical Force Protection countermeasures required before, during, and after deployment to Ecuador are as follows:

### **Major Threats**

Diarrheal disease, viral hepatitis A, typhoid and paratyphoid fever, malaria, dengue fever, Venezuelan Equine Encephalitis, leishmaniasis, sexually transmitted diseases, rabies (primarily from stray dogs), heat injury, industrial pollution, and altitude sickness (central region).

**Presume local water sources are not safe for drinking.**

### **Requirements before Deployment**

1. **Before Deploying report to Medical to:**
  - a. Ensure your Immunizations are up to date, specific immunizations needed for area: **Hepatitis A, MMR, Typhoid, Yellow fever, Tetanus (Td), and Influenza.**
  - b. If you have not been immunized against Hepatitis A (two dose series over 6 months) get an injection of Immunoglobulin with the initial Hepatitis A dose.
2. **Malaria Chemoprophylaxis:** There is no risk of malaria in the country of Chile. No chemoprophylaxis is recommended. Drug resistant strains are present in some locales (chloroquine and possibly Fansidar). Increased risk for malaria occurs countrywide between February and August at elevations below 2,000 meters, primarily in rural areas.
3. **Get HIV testing if not done in the past 12 months.**
4. **Complete attached Pre-Deployment Screening form and turn into your Medical Section.**
5. **Make sure you have or are issued from unit supply: DEET, permethrin, bednets/poles, sunscreen and lip balm. Treat utility uniform and bednet with permethrin.**

### **Requirements during Deployment**

1. Consume food, water, and ice only from US-approved sources; **"Boil it, cook it, peel it, or forget it".**
2. Involve preventive medicine personnel with troop campsite selection.
3. Practice good personal hygiene, hand-washing, and waste disposal.
4. Avoid sexual contact. If sexually active, use condoms.
5. Use DEET and other personal protective measures against insects and other arthropod-borne diseases. Personal protective measures include but are not limited to proper wear of uniform, use of bed nets, and daily "buddy checks" in tick and mite infested areas.
6. Continue malaria chemoprophylaxis.
7. Minimize non-battle injuries by ensuring safety measures are followed. Precautions include hearing and eye protection, enough water consumption, suitable work/rest cycles, and acclimatization to environment and stress management.
8. Eliminate food/waste sources that attract pests in living areas.
9. Avoid contact with animals and hazardous plants.
10. Consider **Acetazolamide (Diamox) 250 mg every 6 – 12 hours** for 1 – 2 days before ascent and continued for 48 hours **if traveling to elevations >2,500 meters .**

### **Requirements after Deployment**

1. Continue malaria chemoprophylaxis.
2. Begin terminal malaria prophylaxis as described above.
3. Receive preventive medicine debriefing after deployment.
4. Seek medical care immediately if ill, especially with fever.
5. Get HIV and PPD testing as required by your medical department or Task Force Surgeon.

**CHILE**  
**DISEASE VECTOR RISK ASSESSMENT PROFILE**  
(VECTRAP)

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1. **GEOGRAPHY:** **Area** of 756,945 sq. km. (302,778 sq. mi.), nearly twice the size of California. **Cities** -Santiago (capital, metropolitan pop. est. 5.3 million people); **Other Cities** - Vina del Mar - Valparaiso (600,000), Concepcion - Talcahuano (550,000). **Terrain** - Desert in north, fertile central valley. Volcanoes and lakes toward the south, giving way to rugged and complex coastline. Andes Mountains on the eastern border. **Climate** - Arid in the north, mediterranean-like in the center, cool and damp in the south.

2. **VECTOR-BORNE DISEASES:**

a. **Malaria:** Eradication has been certified by WHO/PAHO.

b. **Dengue fever:** Not currently reported. Historically, there has been an absence of arthropod-borne viruses.

c. **Chagas' disease** (American trypanosomiasis) is vectored by triatomid bugs (family: Reduviidae). Chagas' occurs in the rural and suburban areas of the northern half of Chile, between 18\_30' and 34\_ 36' South latitude. Up to 17% of at-risk population (1,800,000) may be infected. In 1984 the seropositive rate for the causative agent, *Trypanosoma cruzi*, in Chilean blood banks varied from 0.3 to 14 percent.

d. Other vector-borne diseases: **Lyme disease** (a tick-borne borreliosis) reportedly serologically confirmed in 1989, but endemicity is unconfirmed.

**Plague** (flea-borne) and **typhus** (both louse- and flea-borne) endemic status is uncertain. Isolated foci may exist in some rural areas.

3. **DISEASE VECTOR INFORMATION:**

a. Only two known vectors of Chagas' disease are known in Chile, the domiciliary species *Triatoma infestans* (the most important South American vector) and the sylvatic *T. spinolai*. The principal vector for Chagas' disease in Chile is the reduviid bug, *Triatoma infestans* which prefers mud, sand, and wood. This is a domiciliary bug that is nocturnally active, and has a high rate of infection in the endemic areas of Chile. Therefore, any dwellings that might provide suitable harborage for these bugs should be avoided. Lindane and propoxur are reported to be effective against *T. infestans* in Chile. *T. spinolai* is found in human dwellings and has a diurnal activity pattern.

4. **DISEASE AND VECTOR CONTROL PROGRAMS:**

a. Prevention & Control: The conscientious use of personal protective measures will help to reduce the risk of many vector-borne diseases. The most important personal protection measures include the use of DEET insect repellent on exposed skin, wearing permethrin-treated uniforms, and wearing these uniforms properly. The use of DEET 33% lotion (2 oz. tubes: NSN 6840-01-284-3982) during daylight and evening/night hours is recommended for protection against a variety of arthropods including mosquitoes, sand flies, other biting flies, fleas, ticks and mites. Uniforms should be treated with 0.5% permethrin aerosol clothing repellent (NSN 6840-01-278-1336), per label instructions. NOTE: This

spray is only to be applied to trousers and blouse, not to socks, undergarments or covers. Reducing exposed skin (e.g., rolling shirt sleeves down, buttoning collar of blouse, blousing trousers) will provide fewer opportunities for blood-feeding insects and other arthropods. Additional protection from mosquitoes and other biting flies can be accomplished by the use of screened eating and sleeping quarters, and by limiting the amount of outside activity during the evening/night hours when possible. Bednets (insect bar [netting]: NSN 7210-00-266-9736) may be treated with permethrin for additional protection.

b. Triatome bugs are night-biters; personal protective measures should be maintained throughout the night and the use of thatch huts for sleeping quarters should be prohibited. Other domiciliary pests to be avoided are scorpions and spiders (poisonous spiders of *Loxosceles* and *Latrodectus* species) which are widespread and abundant in Chile.

c. Expanded Vector Control Recommendations are available upon request.

## 5. IMPORTANT REFERENCES:

Contingency Pest Management Pocket Guide - Fourth Edition. Technical Information Memorandum (TIM) 24. Available from the Defense Pest Management Information Analysis Center (DPMIAC) (DSN: 295-7479 COMM: (301) 295-7479). Best source for information on vector control equipment, supplies, and use in contingency situations.

Control of Communicable Diseases Manual - Sixteenth Edition. 1995. Edited by A. S. Benenson. Available to government agencies through the Government Printing Office. Published by the American Public Health Association. Excellent source of information on communicable diseases.

Medical Environmental Disease Intelligence and Countermeasures - (MEDIC). September 1997. Available on CD-ROM from Armed Forces Medical Intelligence Center, Fort Detrick, Frederick, MD 21702-5004. A comprehensive medical intelligence product that includes portions of the references listed above and a wealth of additional preventive medicine information.

Internet Sites- Additional information regarding the current status of vector-borne diseases in this and other countries may be found by subscribing to various medical information sites on the internet. At the Centers of Disease Control and Prevention home page subscriptions can be made to the Morbidity and Mortality Weekly Report (MMWR) and the Journal of Emerging Infectious Diseases. The address is [www.cdc.gov](http://www.cdc.gov). The World Health Organization Weekly Epidemiology Report (WHO-WER) can be subscribed to at [www.who.int/wer](http://www.who.int/wer). The web site for PROMED is [www.promedmail.org:8080/promed/promed.folder.home](http://www.promedmail.org:8080/promed/promed.folder.home).

Although PROMED is not peer reviewed, it is timely and contains potentially useful information. The CDC and WHO reports are peer reviewed. Information on venomous arthropods such as scorpions and spiders as well as snakes, fish and other land animals can be found at the International Venom and Toxin Database website at [www.uq.edu.au/~ddbfr/](http://www.uq.edu.au/~ddbfr/). Information on anti-venom sources can also be found at that site. Information on Poisonings, Bites and Envenomization as well as poison control resources can be found at [www.invivo.net/bg/poison2.html](http://www.invivo.net/bg/poison2.html).